

ABSTRACT OF THE DISCLOSURE

Fractal computers are neural network architectures that exploit the characteristics of fractal attractors to perform general computation. This disclosure explains neural network implementations for each of the critical components of computation: composition, minimalization, and recursion. It then describes the creation of fractal attractors within these implementations by means of selective amplification or inhibition of input signals, and it describes how to estimate critical parameters for each implementation by using results from studies of fractal percolation. These implementation provide standardizable implicit alternatives to traditional neural network designs. Consequently, fractal computers permit the exploitation of alternative technologies for computation based on dynamic systems with underlying fractal attractors.